

In the Claims:

1. (Currently Amended) A method of skew ray and residual retardation compensation in a microdisplay based device, comprising the steps of:

operating on a light channel directed to a microdisplay with a ~~quater~~ quarter waveplate oriented such that a principle axis of the quater quarter waveplate is aligned parallel to an axis of linear polarization of the light channel incident upon the quarter waveplate;

modulating the light channel after the quarter waveplate with a microdisplay oriented at an angle θ_0 such that an optical "axis" of the microdisplay is optimally oriented for residual retardation compensation with respect to the linearly polarized light input to the microdisplay from the quarter waveplate.

2. (Currently Amended) A prism assembly, comprising:

a set of optics configured to break an input light beam into at least a first component light beam and a second component color light beam;

a first quarter ~~wavplate~~ waveplate inserted in the first component light beam and oriented such a principle axis of the first ~~quater~~ quarter waveplate is aligned parallel to an axis of linear polarization of the first component light beam; and

a second quarter ~~wavplate~~ waveplate inserted in the second component light beam and oriented such a principle axis of the second ~~quater~~ quarter waveplate is aligned perpendicular to an axis of linear polarization of the second component light beam.

3. (Currently Amended) The prism assembly according to Claim 2, wherein:

the set of optics is further configured to break the input light beam further into at least a third component color light beam; and

the ~~prism~~ prism assembly further comprising a third quarter ~~wavplate~~ waveplate inserted in the second component light beam and oriented such a principle axis of the second ~~quater~~ quarter waveplate is aligned parallel to an axis of linear polarization of the second component light beam.

4. (Currently Amended) The prism assembly according to Claim 3, further comprising:

a set of modulation devices each ~~respectively~~ respectively inserted into a corresponding one of the component color light beams and each modulation device configured to modulate its respective corresponding component light beam;

wherein the color ~~component~~ component light beams having parallel quarter waveplates are reflected N times ~~atef~~ after modulation and the color component light beams having perpendicular quarter waveplates are reflected M times after modulation.

5. (Currently Amended) The prism assembly according to Claim 3, further comprising:

a set of modulation devices each ~~respectively~~ respectively inserted into a corresponding one of the component color light beams and each modulation device configured to modulate its respective corresponding component light beam;

wherein the color ~~component~~ component light beams having parallel quarter waveplates are reflected ~~atef~~ after modulation and the color component light beams having perpendicular quarter waveplates are not reflected after modulation.

6. (Currently Amended) The prism assembly according to Claim 3, further comprising:

a set of modulation devices each ~~respectively~~ respectively inserted into a corresponding one of the component color light beams and each modulation device configured to modulate its respective corresponding component light beam;

wherein the color ~~component~~ component light beams having perpendicular quarter waveplates are reflected after modulation and the color component light beams having parallel quarter waveplates are reflected after modulation.

7. (Currently Amended) A microdisplay package, comprising:

a ~~quarter~~ quarter waveplate oriented such that a principle axis of the ~~quarter~~ quarter waveplate is aligned parallel to a reference axis; and

a microdisplay device coupled to the quarter waveplate and oriented at an angle θ_0 such that an optical "axis" of the microdisplay is ~~optimally~~ oriented for residual retardation compensation with respect to ~~the linearly~~ polarized light input to the microdisplay from the quarter waveplate ~~when the reference axis is parallel to an axis of linear polarization of light incident to the quarter waveplate.~~

8. (Original) The microdisplay package according to Claim 7, wherein the quarter waveplate is cut such that outer dimensions of the quarter waveplate cover an optical face of the microdisplay.

9. (Original) The microdisplay package according to Claim 7, wherein the quarter waveplate is cut such that outer dimensions of the quarter waveplate are congruent with an optical face of the microdisplay.

10. (Currently Amended) The microdisplay package according to Claim 7, wherein the quarter waveplate is cut such that outer dimensions of the

quarter waveplate is ~~propertional~~ proportional to dimensions of an optical face of the microdisplay.

11. (Original) The microdisplay package according to Claim 7, wherein the quarter waveplates are constructed from higher order waveplates.

12. (Original) A microdisplay package, comprising:
a microdisplay having an optical axis;
a quarter waveplate coupled to the microdisplay.

13. (Original) The microdisplay package according to Claim 12, wherein the quarter waveplate is cut such that a principle axis of the quarter waveplate is parallel to the optical axis of the microdisplay.

14-25 (Canceled)

26. (Currently Amended) A prism assembly comprising:

a set of optics configured to break an input light beam into component color light beams, direct each component color light beam to a corresponding modulation device for modulation, and recombine the modulated component light beams into an output beam containing an image according to an ~~enerigation~~ energization of the modulation devices; and

at least one a ~~quater~~ quarter waveplate inserted in at least one of the component color light beams and oriented such that a principle axis of the at least one ~~quater~~ quarter waveplate is aligned parallel to an axis of linear polarization of the component color light beam incident thereto;

wherein the modulation device corresponding to the at least one component color light beam is oriented at an angle θ_0 such that an optical "axis" of the microdisplay is optimally oriented for residual retardation

compensation with respect to the linearly polarized light input to the microdisplay from the quarter waveplate.

27-30 (Canceled)

31. (Original) A prism assembly, comprising:

at least 3 light channels;

a set of parallel waveplates and at least one perpendicular waveplate, each parallel and perpendicular waveplate individually positioned in a respective one of the light channels;

the parallel waveplates oriented so as to have a principle axis oriented parallel to an axis of linearly polarized light input to the parallel waveplates and the perpendicular waveplate is oriented with its principle axis perpendicular to an axis of linearly polarized light input to the perpendicular waveplate; and

at least 3 microdisplays attached to the prism assembly, each individually positioned in a respective one of the light channels and an axis of each microdisplay is parallel to an axis of polarized light input to the quarter waveplate of the same channel.

32-37 (Canceled)

38. (New) The method according to Claim 1, wherein the microdisplay is a reflective Liquid Crystal On Silicon (LCOS) microdisplay.

39. (New) The method according to Claim 1, wherein the quarter waveplate is a compensated higher order waveplate.

40. (New) The method according to Claim 1, wherein the light channel is part of a Liquid Crystal On Silicon (LCOS) video projection system utilizing LCOS microdisplays.

41. (New) The method according to Claim 1, wherein the light channel is one channel of a multi light channel kernel wherein at least one other light channel utilizes an essentially identical method for skew ray and residual retardation compensation.

42. (New) The method according to Claim 41, wherein differences between the light channel and the other light channel account for differences in a predominate light wavelength of each light channel.

43. (New) The method according to Claim 41, wherein differences between the light channel and the other light channel account for layout differences between the light channels.

44. (New) The microdisplay package according to Claim 7, wherein the angle θ_0 comprises an angle between a mechanical axis of the microdisplay and the optical axis of the microdisplay.

45. (New) The microdisplay package according to Claim 7, wherein optimally oriented comprises aligning an optical axis of the microdisplay with an axis of linear polarization of light input

46. (New) The microdisplay package according to Claim 7, wherein the reference axis is parallel to an axis of linear polarization of light incident to the quarter waveplate.

47. (New) The microdisplay package according to Claim 7, wherein microdisplay is optimally oriented for residual retardation compensation with respect to the linearly polarized light input to the microdisplay from the quarter

waveplate, and the reference axis is parallel to an axis of linear polarization of light incident to the quarter waveplate.

48. (New) The microdisplay package according to Claim 47, wherein the microdisplay is a reflective Liquid Crystal On Silicon (LCOS) microdisplay.

49. (New) The microdisplay package according to Claim 7, wherein the microdisplay is a reflective Liquid Crystal On Silicon (LCOS) microdisplay.

50. (New) The microdisplay package according to Claim 7, wherein the light channel is part of a Liquid Crystal On Silicon (LCOS) video projection system utilizing LCOS microdisplays.

51. (New) The microdisplay package according to Claim 7, wherein the light channel of a multi light channel kernel wherein at least one other light channel utilizes an essentially identical technique for skew ray and residual retardation compensation in each channel.

52. (New) The microdisplay package according to Claim 51, wherein the only differences in technique for compensation in each channel comprises one of a predominate wavelength of light in each channel and physical layout of each channel.

53. (New) The microdisplay package according to Claim 52, wherein the light channels are produced via a quad style kernel comprising 4 beam splitters arranged in a liquid coupled quad configuration.

54. (New) The microdisplay package according to Claim 53, wherein the quad style kernel is operative to produce red, green, and blue light channels each modulated by a similar microdisplay package.

55. (New) The microdisplay package according to Claim 52, wherein the microdisplay package is part of a LCOS Video projection system.

56. (New) The microdisplay package according to Claim 7, wherein the microdisplay package is part of a LCOS Video projection system.